

CLAIMS

1. A multi-layer oral dosage form, preferably a tablet, comprising:

- 5 (a) a matrix core comprising a therapeutically effective amount of a first drug, wherein the matrix core allows sustained release of the first drug;
- 10 (b) a first layer, which is in contact with said matrix core, comprising a first portion of a pharmaceutically effective amount of a second drug and optionally an additional amount of the first drug, wherein the first layer allows sustained release of the first and second drug; and
- (c) a second layer, which is also in contact with said matrix core, comprising a second portion of the second drug, wherein the second layer allows immediate release of the second drug.

15 2. A multi-layer oral dosage form, preferably a tablet, comprising:

- (a) a matrix core comprising a therapeutically effective amount of a first drug, wherein the matrix core allows sustained release of the first drug;
- 20 (b) a first layer, which is in contact with said matrix core, comprising a first portion of a pharmaceutically effective amount of a second drug, wherein the first layer allows sustained release of the second drug; and
- 25 (c) a second layer, which is also in contact with said matrix core, comprising a second portion of the second drug, wherein the second layer allows immediate release of the second drug.

3. The multi-layer oral dosage form as defined in claims 1 and 2, wherein said matrix core further comprises insoluble polymers and adjuvants.
- 5 4. The multi-layer oral dosage form as defined in claim 3, wherein said polymers are selected from the group consisting of insoluble cellulosic materials, polyvinyl acetates, polyvinyl alcohols, polyethylene oxides, metacrylates, and non-crosslinked polyvinylpyrrolidone.
- 10 5. The multi-layer oral dosage form as defined in claim 3, wherein said adjuvants comprise sugars, colloidal silica, calcium diphosphate, talc and magnesium stearate.
6. The multi-layer oral dosage form as defined in claim 3, wherein said first layer further comprises water-soluble and/or gel forming polymeric materials.
- 15 7. The multi-layer oral dosage form as defined in claim 3, wherein said second layer further comprises pharmaceutically acceptable excipients selected from the group consisting of cellulose derivatives, cross-linked polymers, sugars, soluble salts, colorants, fillers, disintegrants, anti-tacking agents and anti-static agents.
- 20 8. The multi-layer oral dosage form as defined in claim 6, wherein said first layer comprises from about 15 to about 95% of the second drug.

9. The multi-layer oral dosage form as defined in claim 7, wherein said second layer comprises from about 5 to about 85% of the second drug.

10. The multi-layer oral dosage form as defined in
5 any one of claims 1 to 9, wherein said first drug is an NSAID.

11. The multi-layer oral dosage form as defined in claim 10, wherein said NSAID consists essentially of diclofenac.

12. The multi-layer oral dosage form as defined in claim 11, comprising from about 50 to about 150 mg of diclofenac.

10 13. The multi-layer oral dosage form as defined in claim 12, comprising about 75 mg of diclofenac.

14. The multi-layer oral dosage form as defined in claim 10, wherein said NSAID consists essentially of aspirin.

15 15. The multi-layer oral dosage form as defined in claim 12, comprising from about 50 to about 150 mg of aspirin.

16. The multi-layer oral dosage form as defined in claim 12, comprising about 80 mg of aspirin.

17. The multi-layer oral dosage form as defined in any one of claims 1 to 16, wherein said second drug is an H₂-receptor
20 antagonist.

18. The multi-layer oral dosage form as defined in claim 17, wherein said H₂-receptor antagonist consists essentially of famotidine.

5 19. The multi-layer oral dosage form as defined in claim 18, comprising from about 20 to about 60 mg of famotidine.

20. The multi-layer oral dosage form as defined in claim 19, comprising about 40 mg of famotidine.

21. The multi-layer oral dosage form as defined in claims 1 and 2, further comprising a coating.

10 22. The multi-layer oral dosage form as defined in claim 21, wherein the coating is a light protective coating.

23. The multi-layer oral dosage form as defined in claim 22, wherein the light protective coating comprises film-formers, plasticizers and pigments.

15 24. The multi-layer oral dosage form as defined in claim 23, wherein said film formers comprise hydrophilic polymers.

25. The multi-layer oral dosage form as defined in claim 24, wherein said hydrophilic polymers comprise hydroxypropylmethyl cellulose.

20 26. The multi-layer oral dosage form as defined in claim 23, wherein said plasticizers are selected from the group consisting

of triethyl citrate, diethyl phthalate, propylene glycol, glycerin, butyl phthalate, and castor oil.

27. The multi-layer oral dosage as defined in any one of claims 1 to 26, wherein the dosage form is a tablet.

5 28. A method for treating and preventing osteoarthritis in patients susceptible to developing NSAID induced gastric and duodenal ulcers comprising administering a multi-layer oral dosage form as defined in claim 1.

10 29. A method for treating and preventing osteoarthritis in patients susceptible to developing NSAID induced gastric and duodenal ulcers comprising administering a multi-layer oral dosage form as defined in claim 2.

30. A method for preparing a multi-layer oral dosage form according to claim 2, comprising:

- 15 (a) preparing a sustained release matrix core comprising a therapeutically effective amount of a first drug or pharmaceutically acceptable salts thereof;
- (b) preparing a sustained release blend comprising a first portion of a pharmaceutically effective amount of a second drug or
- 20 pharmaceutically acceptable salts thereof;
- (c) preparing an immediate release blend comprising a second portion of the second drug or pharmaceutically acceptable salts thereof; and

- (d) combining, by compressing, the matrix core of step (a), the sustained release blend of step (b) and the immediate release blend of step (c).

31. The method as defined in claim 30, wherein
5 the matrix core further comprises insoluble polymers and adjuvants.

32. The method as defined in claim 31, wherein
said polymers are selected from the group consisting of insoluble cellulosic materials, polyvinyl acetates, polyvinyl alcohols, polyethylene oxides, methacrylates, and non-crosslinked polyvinylpyrrolidone.

10 33. The method as defined in claim 31, wherein
said adjuvants comprise sugars, colloidal silica, calcium diphosphate, talc and magnesium stearate.

34. The method as defined in claim 30, wherein
said sustained release blend further comprises water-soluble and/or gel
15 forming polymeric materials.

35. The method as defined in claim 30, wherein
said immediate release blend further comprises pharmaceutically acceptable excipients selected from the group consisting of cellulose derivatives, cross-linked polymers, sugars, soluble salts, colorants, fillers,
20 disintegrants, anti-tacking agents and anti-static agents.

36. A method as defined in claim 34, wherein said
sustained release blend comprises from about 15 to about 95% of the
second drug.

37. A method as defined in claim 35, wherein said immediate release blend comprises from about 5 to about 85% of the second drug.

38. A method as defined in any one of claims 30
5 to 37, wherein said first drug is an NSAID.

39. A method as defined in claim 38, wherein said NSAID consists essentially of diclofenac.

40. A method as defined in claim 39, comprising from about 50 to about 150 mg of diclofenac.

10 41. A method as defined in claim 40, comprising about 75 mg of diclofenac.

42. A method as defined in claim 38, wherein said NSAID consists essentially of aspirin.

43. A method as defined in claim 42, comprising
15 from about 50 to about 150 mg of aspirin.

44. A method as defined in claim 43, comprising about 80 mg of aspirin.

45. A method as defined in any one of claims 30 to 37, wherein said second drug is an H₂-receptor antagonist.

46. A method as defined in claim 45, wherein said H₂-receptor antagonist consists essentially of famotidine.

47. A method as defined in claim 46, comprising from about 20 to about 60 mg of famotidine.

5 48. A method as defined in claim 47, comprising about 40 mg of famotidine.

49. The method as defined in claim 30, further comprising the step of coating the multi-layer tablet with a protective coating.

10 50. The method as defined in claim 49, wherein the protective coating is a light protective coating.

51. The method as defined in claim 50, wherein the light protective coating comprises film formers, plasticizers and pigments.

15 52. The method as defined claim 51, wherein the film formers comprise hydrophilic polymers.

53. The method as defined in claim 52, wherein the hydrophilic polymers comprise hydroxypropylmethyl cellulose.

20 54. The method as defined in claim 51, wherein the plasticizers are selected from the group consisting of triethyl citrate, diethyl phthalate, propylene glycol, glycerin, butyl phthalate, and castor oil.

55. A multi-layer oral dosage form comprising:

- (a) a matrix core comprising from about 50 to about 150 mg of diclofenac;
- 5 (b) a sustained release layer, which is in contact with said matrix core, comprising from about 10 to about 40 mg of famotidine; and
- (c) an immediate release layer, which is in contact with said matrix core, comprising from about 5 to about 20 mg of famotidine.

56. The multi-layer oral dosage form as defined in claim 55, wherein said matrix core comprises about 75 mg of diclofenac.

10 57. The multi-layer oral dosage form as defined in claim 56, wherein said sustained release layer comprises about 30 mg of famotidine.

15 58. The multi-layer oral dosage form as defined in claim 57, wherein said immediate release layer comprises about 10 mg of famotidine.

59. The multi-layer oral dosage form as defined in any one of claims 55 to 58, wherein the oral dosage form is a tablet.

60. A multi-layer oral dosage form comprising:

- (a) a matrix core comprising from about 50 to about 150 mg of aspirin;
- 20 (b) a sustained release layer, which is in contact with said matrix core, comprising from about 10 to about 40 mg of famotidine; and

- (c) an immediate release layer, which is also in contact with said matrix core, comprising from about 5 to about 20 mg of famotidine.

61. The multi-layer oral dosage form as defined in claim 60, wherein said matrix core comprises about 80 mg of aspirin.

5 62. The multi-layer oral dosage form as defined in claim 59, wherein said sustained release layer comprises about 30 mg of famotidine.

10 63. The multi-layer oral dosage form as defined in claim 59, wherein said immediate release layer comprises about 10 mg of famotidine.

64. The multi-layer oral dosage form as defined in any one of claims 60 to 63, wherein the oral dosage form is a tablet.